

Remarks

Reconsideration of this Application is respectfully requested.

Claim 45 is sought to be amended. Upon entry of the above amendment, claims 24-45 are pending in the application, with 24, 39, and 45 being the independent claims.

Based on the above amendment and following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 24-32 and 34-45 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,508,660 to Gersbach et. al. ("Gersbach"). Claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Gersbach. Applicant respectively traverses these rejections.

Claims 24, 39, and 45 recite a charge pump including at least two parallel current paths, each current path having an output node, and each current path being coupled between first and second current sources. Claims 24 and 39 also recite at least a filter coupled to the first output node, a capacitor coupled to the second output node, and a feedback means coupled between the filter and the capacitor. Claim 24 further recites the feedback means is coupled to one of said first and second current sources.

In contrast to the elements recited in Claims 24, 39, and 45, Gersbach teaches a charge pump circuit 30 that includes two current paths that share the same output node 31. Output node 31 is used to couple a mismatch measurement circuit 40 to the charge pump circuit 30. Measurement circuit 40 includes at least a filter and an output node 49 to which a capacitor C can be coupled (FIG. 4). A first compensation/feedback circuit 42 is coupled between the measurement circuit 40 and an INC current source and a second compensation/feedback circuit 44 is coupled between the measurement circuit 40 and an DEC current source.

Gersbach neither anticipates nor renders obvious at least claims 24, 39, and 45. All these independent claims recite a charge pump having first and second parallel current paths having first and second output nodes, while Gersbach teaches of a charge pump 30 having first and

second current paths that are coupled via a single output node 31. At least claims 24 and 39 also recite coupling a filter to the first output node and a capacitor to the second output node, while Gersbach has no capacitor and/or filter coupled to the only output node 31, only a measurement circuit 40 is coupled to the only output node 31. At least claims 24 and 39 further recite coupling the filter and the capacitor to inputs of a feedback means, while Gersbach has no capacitor coupled to the compensation/feedback circuits 42 and 44 and no filter coupled to compensation/feedback circuits 42 and 44. At least claim 24 still further recites coupling the feedback means to one of the first and second current sources, while Gersbach teaches of using one feedback device 42 for the INC current source and a second feedback device 44 for the DEC current source. Thus, Gersbach requires both current sources receive feedback signals from individual feedback circuits 42 and 44.

Therefore, for at least the reasons discussed above, claims 24, 39, and 45 should be found allowable over Gersbach. Also, all claims depending from these claims should also be found allowable over Gersbach for at least the same reasons.

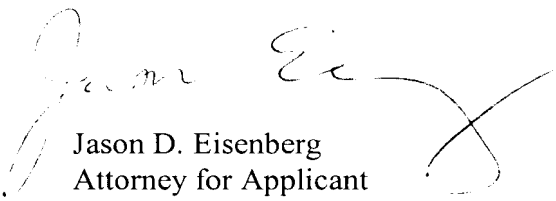
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Version with markings to show changes made

In the claims

Pending claim 45 was replaced with new claim 45 as follows.

45. (Amended) A method of controlling a charge pump having two parallel current paths formed of transistors, each current path having an output node and coupled between a first current source and a second current source, said charge pump operating within a phase lock loop, the method comprising the steps of:

detecting a phase or frequency characteristic of an input signal to produce an output signal;

receiving said output signal at said charge pump and using said output signal to produce a charge pump control signal;

generating a characteristic current using one of said first current path and said second current path in response to said charge pump control signal; and
controlling a value of one of said first current source and said second current source to minimize D.C. offsets resulting from parasitic capacitances of said transistors.